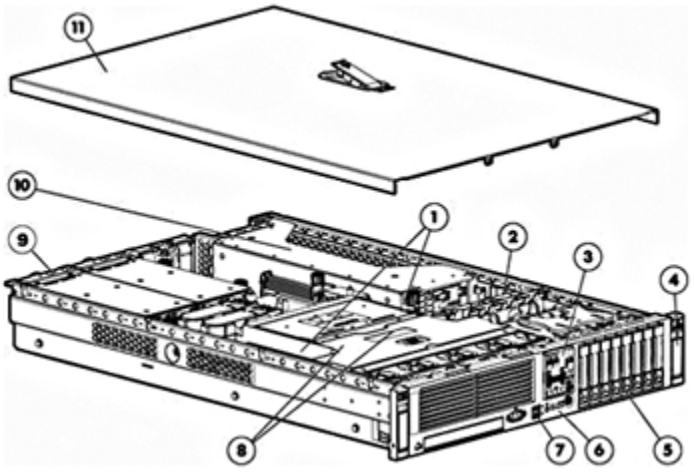
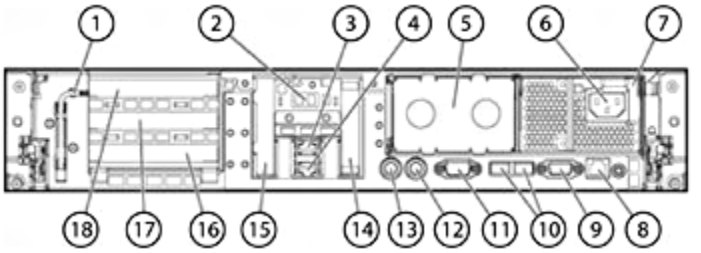
Overview





Front View:

1. Eight sockets for PC2-5300 DIMMs (DDR2-667) with Advanced ECC
2. Hot-plug fans, full redundancy
3. Systems Insight Display
4. Quick release lever for rapid server access
5. Support for eight Small Form Factor hot plug hard drives bays
6. Front LEDs (show server status) and Unit Identification button/LED (for easy in rack server identification)
7. Two front USB ports (+two rear, one internal USB port)
8. AMD Dual Core Rev. F Processor (Performance models include two processors)
9. Hot plug power supply, redundancy option (High performance models include redundant power supply)
10. Three PCI-E non-hot plug expansion slots (or optional mixed PCI-X/E expansion cage or optional x16 PCI-E expansion cage). Two additional PCI-E slots embedded on system board. This provides Four available PCI-E non-hot plug expansion slots for use; one consumed by Smart Array Controller
11. Quick removal access panel

Rear View:

1. T-10/T-15 Torx screwdriver
2. External option blank
3. NIC 2 connector
4. NIC 1 connector
5. Power supply bay 2
6. Power cord connector
7. Power supply bay 1 (populated)
8. Integrated Lights-Out 2 (iLO 2) connector
9. Video connector
10. USB connectors (2)
11. Serial connector
12. Mouse connector
13. Keyboard connector
14. Expansion slot 1
15. Expansion slot 2
16. Expansion slot 3
17. Expansion slot 4
18. Expansion slot 5

What's New

- New speed for Rev F: AMD Opteron Processor 2222 (3.0 GHz / 95 Watts)

At A Glance

The HP ProLiant DL385, the world's largest selling AMD server, delivers on its history of design excellence with enterprise-class uptime and manageability, proven 2-way, dual core AMD Opteron performance, and 2U density for a variety of rack deployments and applications.

- **Processors:**
  - AMD Dual-core Rev F, 2000 series processors with 2MB Level 2 cache for blazing performance; systems support up to 2 processors (2 processors standard on all Performance models)
  - Preconfigured Performance models save valuable deployment time at a discounted bundle price
  - Serverworks HT-2100 Northbridge and HT1000 Southbridge chipset

Overview

- **Memory:**
  - Up to 32 GB PC2-5300 DIMMs (DDR2-667). Standard models support 2:1 Interleaving. Bank Interleaving (Data saved across 2 pairs of DIMMs) and Node interleaving supported (data saved across 2 processors memory sets) also available.
- **Storage Controller:**
  - Performance Models: Smart Array P400/512MB BBCW Controller (RAID 0/1/5/6)
  - Base Models: Smart Array P400/256MB Controller (RAID 0/1/5)
    - Upgrade to 512 MB cache w/o Battery Backed Cache module, optional BBWC
    - The Smart Array P400/256MB Controller ships installed in slot 1 (slots 2-5 are available)
  - Entry Model: Smart Array E200/64MB Controller (RAID 0/1)
    - Upgrade to 128 MB cache, adds Raid 5 and BBWC
    - The Smart Array E200/64MB Controllers ships installed in slot 3
- **Internal Drive Support:**
  - (8) small form factor (SFF) hot-plug drive bays to support Serial-attached SCSI (SAS) and Serial ATA (SATA) drives
- **Network Controller:**
  - Two embedded NC373i Multifunction Gigabit Network Adapters with TCP/IP Offload Engine, including support for Accelerated iSCSI through an optional Licensing Kit
- **Expansion Slots:**
  - 4 Total PCI-Express slots: three x8 and one x4.
  - Optional mixed 2 PCI-X / two x8 PCI-Express and Optional cage with PCI-Express with one x8, one x16 and one x4 configurations available.
- **USB 2.0 Ports:**
  - 5 total ports: (2) ports up front; (2) ports in back; (1) port internal
- **Redundancy:**
  - Fully redundant hot plug fans
  - Hot plug power supply with optional redundancy (Included in Performance models)
- **Management:**
  - Integrated Lights-Out 2 featuring Integrated Remote Console with KVM over IP performance over shared network access
  - Automatic Server Recovery (ASR), ROM Based Setup Utility (RBSU), HP System Insight Manager, Status LEDs including system health and UID and SmartStart
  - System Insight Display on the front bezel for quick and easy server diagnostics
- **Form Factor:**
  - Rack (2U), (3.5-inch)
- **Deployment/Serviceability:**
  - Quick Deploy Rail System includes sliding universal rails, an ambidextrous cable management arm and quick release levers for fast and easy serviceability
  - Tool-less access to all system components for easy in rack serviceability
- **Warranty:**
  - This product is covered by a global limited warranty and supported by HP Services and a worldwide network of HP Authorized Channel Partners resellers. Hardware diagnostic support and repair is available for three years from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Enhancements to warranty services are available through HP Care Pack services or customized service agreements. SATA hard drives have a one-year warranty.
    NOTE: Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response. Additional information regarding worldwide limited warranty and technical support is available at: http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html

Standard Features

NOTE: For a brief, printer friendly data sheet that describes this product and informs you of the essential capabilities and specifications, please visit: http://h71028.www7.hp.com/ERC/downloads/4AA0-8261ENW.pdf.
NOTE: For the Standard Features shipped in the "Factory Integrated Models", please see the "Configuration Information - Factory Integrated Models" section.

Processor One of the following depending on Model	AMD Opteron Processor 2222 (3.0 GHz / 95 Watts) **NOTE:** CTO only. AMD Opteron Processor 2220 (2.8 GHz / 95 Watts) AMD Opteron Processor 2218 (2.6 GHz, 95 Watts) AMD Opteron Processor 2218 HE (2.6 GHz, 68 Watts) **NOTE:** CTO only. AMD Opteron Processor 2216 HE (2.4 GHz, 68 Watts) AMD Opteron Processor 2216 (2.4 GHz, 95 watts) **NOTE:** CTO only. AMD Opteron Processor 2214 HE (2.2 GHz, 68 Watts) AMD Opteron Processor 2212 HE (2.0 GHz, 68 Watts) **NOTE:** CTO only. AMD Opteron Processor 2210 HE (1.8 GHz, 68 Watts) AMD Opteron Processor 2210 (1.8 GHz, 95 Watts) **NOTE:** CTO only. **NOTE:** Up to 2 processors supported. High Performance Model configurations include two processors, Upgraded memory to 512, BBWC, DVD/CDRW and Redundant Power Supply.	
Cache Memory	2MB (2 x 1MB) Level 2 cache (2000 series) **NOTE:** 1MB Level 2 cache per core.	
Chipset	Serverworks HT-2100 Northbridge and HT1000 Southbridge Chipset	
Upgradeability	Upgradeable to 2 processors	
Memory Protection	Advanced ECC	
Memory	**Type**	PC2-5300 DIMMs (DDR2-667) Standard models support 2:1 Interleaving, with Bank Interleaving (Data saved across 2 pairs of DIMMs) and Node interleaving supported (data saved across 2 processors memory sets) available. **NOTE:** DIMM banks are active only when the corresponding processor socket is populated.
	Standard (Entry Models)	1GB (2 x 512 MB)
	Standard (Base Models)	2 GB (2 x 1 GB)
	Standard (Performance Models)	4 GB (4 x 1 GB)
	Maximum	32 GB (8 x 4 GB)

Standard Features

Network Controller Two embedded NC373i Multifunction Gigabit Network Adapters with TCP/IP Offload Engine, including support for Accelerated iSCSI through an optional Licensing Kit

Expansion Slots

Embedded Slots

Slot Number	Bus Speed	Bus Number**	Device Number***	Hot Plug	PCI Voltage
1	X8 PCIe	70	0	no	N/A
2	X8 PCIe	67	0	no	N/A

NOTE: For Base and Performance Models, the Smart Array P400/256MB Controller is installed in Slot 1.
NOTE: For Entry Model, the Smart Array E200/64 MB Controller is installed in Slot 3.
** Default bus assignment. Inserting cards with PCI bridges may alter the actual bus assignment number.
*** Slots are enumerated differently based on OS. MS OS's enumerate from lowest to highest Device ID by bus (starting with the lowest bus).

PCIe Riser

Slot Number	Bus Speed*	Bus Number**	Device Number***	Hot Plug	PCI Voltage
3	x4 PCIe	11	0	no	N/A
4	x8 PCIe	8	0	no	N/A
5	x8 PCIe	5	0	no	N/A

* x4 slots support x8 cards, but will run at x4 speeds. x8 slots supports x16 cards, but will run at x8 speeds.
** Default bus assignment. Inserting cards with PCI bridges may alter the actual bus assignment number.
*** Slots are enumerated differently based on OS. MS OS's enumerate from lowest to highest Device ID by bus (starting with the lowest bus).

PCIe/PCI-X Riser (Optional)

Slot Number	Bus Speed*	Bus Number**	Device Number***	Hot Plug	PCI Voltage
3	x8 PCIe	10	0	no	N/A
4	64-bit/133MHz PCI-X	6	1	no	3.3 Volt
5	64-bit/133MHz PCI-X	6	2	no	3.3 Volt

* x8 slot supports x16 cards, but will run at x8 speed.
** Default bus assignment. Inserting cards with PCI bridges may alter the actual bus assignment number.
*** Slots are enumerated differently based on OS. MS OS's enumerate from lowest to highest Device ID by bus (starting with the lowest bus).

Standard Features

PCIe/ x16 Riser (Optional)

Slot Number	Bus Speed*	Bus Number**	Device Number***	Hot Plug	PCI Voltage
3	x4 PCIe	8	0	no	N/A
4	x16 PCIe	5	0	no	3.3 Volt

* x4 slot support x8 cards, but will run at x4 speed.
** Default bus assignment. Inserting cards with PCI bridges may alter the actual bus assignment number.
*** Slots are enumerated differently based on OS. MS OS's enumerate from lowest to highest Device ID by bus (starting with the lowest bus).

Storage Controller
One of the following depending on Model

Performance Models:	HP Smart Array P400/512MB BBWC Controller (RAID 0/1/5/6)
Base Models:	HP Smart Array P400/256MB Controller (RAID 0/1/5) **Available upgrades:** 512MB memory module for RAID 0/1/5/6, battery for battery-backed write cache (BBWC).
Entry Models:	HP Smart Array E200/64MB Controller (RAID 0/1) **Available upgrades:** 128MB memory module for RAID 0/1/5, battery for battery-backed write cache (BBWC).

Storage

Diskette Drive	None Standard
Optical Drive One of the following depending on Model	None Standard IDE DVD-ROM/CDRW Combo included on Performance models
Hard Drives	None Standard

Maximum Internal Storage

Hot Plug SAS	1.168TB	8 x 146GB with standard internal hot plug SFF SAS drive cage

Remote Management Integrated Lights Out 2 (iLO2) Standard Management:

- Virtual Text Remote Console (pre-OS only)
- Remote Serial Console
- Virtual Power Button Control
- Virtual Unit ID control
- Integrated Remote Console
- Dedicated & full function shared network connectivity
- Embedded system health
- Browser, command line and scripted access
- Automatic IP Configuration via DHCP/DNS/WINS
- Industry Standard 128-bit Secure Sockets Layer (SSL) and Secure Shell security (SSH)
- OS independent hardware health status
- IML and iLO Event Logging
- Support for 12 user accounts with customizable access privilege

Standard Features

Intelligent Manageability	HP Systems Insight Manager SmartStart Management Agent Redundant ROM Remote Flash ROM ROM-Based Setup Utility (RBSU) Integrated Management Log Automatic Server Recovery (ASR) Dynamic Sector Repairing (with Smart Array controller) Drive Parameter Tracking (with Smart Array controller) **NOTE:** Upon the event of a failed processor in a multi-processing environment, the system will automatically reboot and attempt to use the remaining good processor. Pre-Failure Warranty (covers processors, SAS hard drives and memory)

Interfaces	Serial	1
	Pointing Device (Mouse)	1
	Graphics	1
	Keyboard	1
	VGA	2 (1 front, 1 back)
	Network RJ-45	2
	iLO 2 remote management port	1
	USB 2.0 Ports	5 (2 front, 2 back, 1 inside) **NOTE:** Please see the following URL for additional information regarding USB support: http://h18004.www1.hp.com/products/servers/platforms/usb-support.html.

Graphics	Integrated ATI ES1000, 32MB video standard • 16 bit color: maximum resolution of 1600 x 1200 • 32 bit color: maximum resolution of 1280 x 1024 **NOTE:** Maximum resolution available via iLO 2 remote console is 1280x1024.
Form Factor	Rack (2U), (3.5-inch)

Standard Features

ProLiant Essentials Foundation Pack Software	HP Systems Insight Manager	HP Systems Insight Manager (HP SIM) provides a unified, secure and extensible environment to centrally manage servers, storage and other infrastructure devices across multiple operating system platforms. Through a single management view, HP SIM provides core management services that include device discovery and identification, event views, health monitoring, inventory data collection, software version control and reporting. HP SIM is built on industry standards and is extensible with value-added ProLiant Essentials, Integrity Essentials and Storage Essentials software to meet individual management needs. For more details on HP SIM visit http://www.hp.com/go/hpsim. HP SIM provides organizations with the following benefits: • Simplifies and consolidates infrastructure lifecycle management using task and query based functionality • Provides the foundation for infrastructure automation and virtualization • Enables IT management based on business processes not hardware platforms • Lowers infrastructure maintenance cost and frees resources for innovation • Maximizes resource utilization with virtualization technologies • Provides a central point of integration between infrastructure and Enterprise management tools such as HP OpenView
	SmartStart	SmartStart simplifies server setup by providing a quick, easy way to deploy reliable and consistent server configurations. For more information, please visit the SmartStart Web site at http://www.hp.com/servers/manage. SmartStart version supported (minimum): SmartStart 7.51
	Insight Management Agents	Insight Management Agents should be installed on all HP servers to present system instrumentation, health and configuration information into HP Systems Insight Manager and the HP System Management Homepage. The HP System Management Homepage aggregates systems data from Insight Management Agents and other HP management tools, providing a consolidated browser-based interface for managing individual servers, Insight Management Agents and The HP System Management Homepage are included on ProLiant Support Packs, and can also be installed using the server profiles provided with the ProLiant Essentials Rapid Deployment Pack. For additional information about the Management Agents and the HP System Management Homepage please visit the management Web site at http://www.hp.com/servers/manage
	Subscriber's Choice	Subscriber's Choice Driver and Support Alerts/Notifications is a web-based email subscription service that provides automatic delivery of software and driver change notifications for ProLiant products. Sign up at http://www.hp.com/go/subscriberschoice and customize your profile to receive alerts on updates as they become available.
	ROMPaq, support software, and configuration utilities	The latest software, drivers, and firmware fully optimized and tested for your ProLiant server and options Available in SmartStart or downloadable from the Software and Drivers download pages at http://www.hp.com/go/support.

Standard Features

Insight Diagnostics	The most advanced configuration analysis, reporting and troubleshooting utilities used by HP and at your fingertips, available in SmartStart.
Optional ProLiant Essentials Value Packs	Optional software offerings that extend the functionality of an Adaptive Infrastructure to address specific business problems and needs: • **Insight Control Environment** - is based on HP Systems Insight Manager and ProLiant Essentials software, and brings the value of Insight Control to ProLiant customers by delivering comprehensive health and performance monitoring, remote control, vulnerability scanning and patch management as well as flexible deployment and power management through an integrated installation package and streamlined licensing. For more information, visit: http://www.hp.com/go/ice • **Accelerated iSCSI Pack** - enables the embedded Multifunction network controller to serve as both a NIC and an iSCSI HBA providing access to SAN storage over the same connection used for networking. Processing of the protocol stack is offloaded to the NIC reducing CPU utilization and greatly improving the speed with which the requests are processed and sent to the network. • **Rapid Deployment Pack** (RDP) is an automated deployment and provisioning solution for all ProLiant servers. RDP includes the ProLiant Integration Module featuring ProLiant server pre-configured events for OS installation, and optimized software drivers, firmware and management agents. Every RDP disc includes 7-day, 10-node trial licenses for evaluation purposes. RDP requires a license for each server deployed and is available for purchase with HP servers. For more information, visit: http://www.hp.com/servers/rdp. • **Server Migration Pack** - The Server Migration Pack automates the manual processes required for migrating servers between physical or virtual platforms (P2V, V2P, and V2V). • **Server Migration Pack - P2P Edition:** Upgrading or replacing your existing server? Effortlessly transition to new servers with automated, accurate and affordable migration of OS, application and data. • **Performance Management Pack** (offered exclusively through the Insight Control suites) - a performance management solution that identifies and explains hardware performance bottlenecks on ProLiant servers and attached options enabling users to better utilize their valuable resources. • **Virtual Machine Management Pack** - provides central management and control of virtual machines from Microsoft and VMware. Integrated approach provides the ability to manage both physical and virtual resources from a single management console. • **Vulnerability and Patch Management Pack** (offered exclusively through the Insight Control suites) - identifies and remediates software security vulnerabilities due to missing patches as well operating system configurations that can be exploited by viruses, worms, and other blended threats.
Optional Remote Management Packs	• **Integrated Lights-Out Advanced Pack** - upgrades the iLO 2 processor with comprehensive remote control including Virtual KVM remote graphical console, enhanced console sharing and replay, virtual media (floppy, CD/DVD, USB key), virtual folders, historical power reporting, power capping and enterprise security (directory services and two-factor authentication). •

Standard Features

- **Integrated Lights-Out Select Pack** - upgrades the iLO 2 processor with enhanced console sharing and replay, virtual media (floppy, CD/DVD, USB key), virtual folders, historical power reporting, power capping and enterprise security (directory services and two-factor authentication) for servers managed using remote consoles available in iLO 2 Standard and iLO 2 Standard Blade Edition.
- **Insight Power Manager (IPM)** - upgrades the single-server remote management capabilities of iLO Select/Advanced to include centralized reporting and policy-based management of power consumption and thermal output provided by the Insight Power Manager. IPM unifies all of this functionality within a single user interface - HP Systems Insight Manager

NOTE: Flexible and volume quantity license kits are available for ProLiant Essentials Value Packs. Refer to http://www.hp.com/servers/proliantessentials or the various ProLiant Essentials Value Pack product QuickSpecs for more information.
NOTE: For more information regarding ProLiant Essentials Software, please see the following URL: http://www.hp.com/servers/proliantessentials.

Industry Standard Compliance	ACPI 2.0 Compliant PCI 2.2 Compliant WOL Support Microsoft® Logo certifications USB 2.0 Support
Security	Power-on password Keyboard password Diskette drive control Diskette boot control QuickLock, Network Server Mode Parallel and serial interface control Administrator's password
Server Power Cords	One Highline IEC Power cord ships standard (6') **NOTE:** ProLiant DL servers no longer ship standard with NEMA power cords (187335-001) that allow connection to 110V US wall outlets in a home or office. ProLiant DL servers are primarily connected to PDU's in data center racks so they now ship standard with only a PDU power cord (416151-B21). If a user wishes to power a ProLiant DL server using a 110V receptacle (NEMA-15), the NEMA power cord (187335-001) must be ordered separately.
UPS and PDU Power Cord Matrix	Please see the UPS and PDU cable matrix that lists cable descriptions, requirements, and specifications for UPS and PDU units: ftp://ftp.compaq.com/pub/products/servers/ProLiantstorage/power-protection/powercordmatrix.pdf.
Power Supply	800 Watt, CE Mark Compliant Optional Hot Plug AC Redundant Power Supply
System Fans	Hot plug fans ship standard, fully redundant Fully redundant hot plug fans ship standard (N+1)

Standard Features

Required Cabling

For required cabling information, refer to the Web site at: http://h10010.www1.hp.com/wwpc/us/en/ss/WF05a/15351-241434-241475-241475-f79-3219233.html

OS Support

Microsoft Windows Server 2003
Novell NetWare
Red Hat Enterprise Linux
SUSE Linux Enterprise Server
SCO UnixWare, OpenServer
VMware Virtualization Software
Solaris 10 32/64-bit

NOTE: For more complete and up-to-date information on how to buy server operating systems from HP please visit the OS product site at: http://h18004.www1.hp.com/products/servers/software/OEM.html.
NOTE: For a more complete and up-to-date listing of supported OSs and versions, please visit our OS Support Matrix at: http://www.hp.com/go/supportos.
NOTE: For an up-to-date listing of the latest drivers available for the HP ProLiant DL385 G2, please see: http://h18023.www1.hp.com/support/files/server/us/index.html.
NOTE: For more Linux OS support & certification information, please visit our the ProLiant & BladeSystem Server Linux matrix: http://h18004.www1.hp.com/products/servers/linux/hpLinuxcert.html
NOTE: For more information on HP's Certified and Supported ProLiant Servers, please visit the VMware Server Support Matrix at: http://h18004.www1.hp.com/products/servers/software/vmware/hpvmwarecert.html.

Rack Airflow Requirements

Rack 10000 series Cabinets
The increasing power of new high-performance processor technology requires increased cooling efficiency for rack-mounted servers. The 10000 Series Racks provide enhanced airflow for maximum cooling, allowing these racks to be fully loaded with servers using the latest processors.

CAUTION: If a third-party rack is used, observe the following additional requirements to ensure adequate airflow and to prevent damage to the equipment:

- Front and rear doors: If your 42U server rack includes closing front and rear doors, you must allow 830 square inches (5,350 sq cm) of holes evenly distributed from top to bottom to permit adequate airflow (equivalent to the required 64 percent open area for ventilation).
- Side: The clearance between the installed rack component and the side panels of the rack must be a minimum of 2.75 inches (7 cm).

CAUTION: Always use blanking panels to fill all remaining empty front panel U-spaces in the rack. This arrangement ensures proper airflow. Using a rack without blanking panels results in improper cooling that can lead to thermal damage.

NOTE: For additional information, refer to the Setup and Installation Guide or the Documentation CD provided with the server, or to the server documentation located in the Support section at the following URL: http://h18000.www1.hp.com/products/servers/proliantdl385/index.html.

Standard Features

Rack Kit	The HP ProLiant DL385 quick deploy rail system provides tool-free support for racks with square or round mounting holes (including Compaq/HP 7000*, 9000, 10000 and HP series), with an adjustment range of 24" - 36". The ambidextrous cable management arm can be mounted on either the left or right side for improved cable management. **NOTE:** Cable management arm must be removed to access hot-plug power supplies when the cable management arm is mounted on the right. ***NOTE:** High Airflow Inserts (High Air Flow Rack Door Insert for the 7142 Rack (single) - PN: 327281-B21; or High Air Flow Rack Door Insert for the 7142 Rack (6-pack) - PN: 327281-B22) are required to support the HP ProLiant DL385 G2 in 7000 series racks. The DL385 G2 Cable Management Arm is not supported on 7000 series racks.
Telco Rack Support	DL385 G2 Telco Rack Kit: Support for all 2-post Telco racks requires the use of the standard rack kit and an additional option kit from Rack Solutions (http://www.racksolutions.com/hp/)
Factory Express Portfolio for Servers and Storage	HP Factory Express offers configuration, customization, integration and deployment services for HP servers and storage products. Customers can choose how their factory solutions are built, tested, integrated, shipped and deployed. Factory Express offers service packages for simple configuration, racking, installation, complex configuration and design services as well as individual factory services, such as image loading, asset tagging, and custom packaging. HP products supported through Factory Express include a wide array of servers and storage: HP Integrity, HP ProLiant, HP ProLiant Server Blades, HP BladeSystem, HP 9000 servers as well as the MSA1000, VA7xxx, EVA, XP, rackable tape libraries and configurable network switches. For more information on Factory Express services for your specific server model please contact your sales representative or go to http://www.hp.com/go/factory-express.
HP Enterprise Configurator	The HP eCo-Enterprise Configurator now provides factory default racking for our HP hardware portfolio. This approach is aligned with our strategic direction to meet the needs and expectations of our valued customers. If you require "custom" rack configuration, please contact HP's Customer Business Center or an Authorized Partner for assistance. http://www.hp.com/products/configurator.
HP ProLiant Smart Buys (NA only)	The HP Smart Buy program offers mainstream business solutions at competitive prices with excellent availability and superior HP quality. It offers a wide range of industry-leading HP products at compelling prices, allowing you to receive richer configurations with additional options. **NOTE:** ProLiant Smart Buys are available in North America only. For detailed specification information on ProLiant Smart Buys please click on the following link: ftp://ftp.compaq.com/pub/products/servers/smartbuys.pdf

Standard Features

Service and Support

HP Care Pack services provide total care and support expertise with committed response designed to meet your IT and business needs.

HP Care Pack services include coverage for the HP branded hardware options qualified for the server and purchased at the same time or afterward that are internal to the enclosure. This also includes the 22" and smaller external monitors and tower UPS options up to 3kVA. These items will be covered at the same service level and for the same coverage period as the server. Coverage of UPS Battery is not included, and standard warranty terms & conditions apply. For servers or storage systems installed within a rack, service also covers all HP qualified rack options installed within the same rack.

To fully capitalizing on your HP ProLiant servers' capabilities requires a service partner who thoroughly understands your server technology and systems environment. HP Services, an industry leader in provision of multi vender support solutions, provides a range of support services designed to meet the varying needs of your business. Whether an SMB, or large global corporation, HP has a ProLiant server support offer to help you speedily deploy and maximize system uptime.

Recommended Service - simplify ProLiant solution implementation, maintenance, and management.

- Support: 3-Year 4-Hour response 24x7 Same Business Day Coverage only
- Deployment Service: Installation and Start up only

Enhanced Service - optimize service level to increase IT performance and availability.

- Support: 3-Year Support Plus 24 only

Refer to the information on "Installation & Start-Up" for service on ProLiant server and Microsoft or Linux O/S per the Customer Description and/or Data Sheet; to be delivered on a scheduled basis 8am-5pm, M-F, excluding HP holidays.

NOTE: For a complete listing of service offerings and information visit:
http://www.hp.com/services/proliantservices
http://www.hp.com/go/proliant/carepack

HPC Interconnects

NOTE: High Performance Computing (HPC) interconnect technologies are available for the DL385 under the Cluster Platform product portfolio. These high-speed interconnects are fully supported by HP when they are part of these configure to order clusters. Solutions can be defined with a lot of flexibility with the help of configuration tools. Please visit the following URL to configure HPC Clusters with InfiniBand, Gigabit Ethernet or Myrinet Interconnects:
http://www.hp.com/techservers/clusters/ucp/index.html

HPC Interconnect	**InfiniBand**	PCI-X and PCI-Express adapters
	Gigabit Ethernet	Use embedded ports
	Myrinet XP	PCI-X Rev D and Rev E adapters

Models

NOTE: ProLiant Smart Buys are available in NA only. For detailed specification information on ProLiant Smart Buys please click on the following link: ftp://ftp.compaq.com/pub/products/servers/smartbuys.pdf.

HP DL385 G2 Performance Models	**Processor(s)** One of the following depending on Model	(2) Dual-Core AMD Opteron 2218 Processors (2.6 GHz, 95 Watts) (2) Dual-Core AMD Opteron 2220 Processors (2.8 GHz, 95 Watts)
HP DL385G2 2218 4G HPM 432195-xx1	**Cache Memory**	2MB (1 x 2MB) Level 2 cache - 2000 Series
	Memory	4 GB (4 x 1 GB of 2:1 interleaved PC2-5300 DIMMs (DDR2-667) with Advanced ECC capabilities
HP DL385G2 2220 4G HPM 438816-xx1	**Network Controller**	Two Embedded NC373i Multifunction Gigabit Server Adapters
	Storage Controller	HP Smart Array P400/512MB BBWC Controller (RAID 0/1/5/6)
	Hard Drive	None ship standard
	Internal Storage	1.168TB max - 8 x 146GB SAS drives (with optional hard drives)
	Optical Drive	IDE DVD-ROM/CDRW combo
	Form Factor	Rack (2U), (3.5-inch)
	Availability	Hot Plug Fully Redundant Fans and Redundant Power Supplies

HP DL385 G2 Base Models	**Processor(s)** One of the following depending on Model	(1) Dual-Core AMD Opteron 2218 Processor (2.6 GHz, 95 Watts) (1) Dual-Core AMD Opteron 2216 HE Processor (2.4 GHz, 68 Watts) (1) Dual-Core AMD Opteron 2214 HE Processor (2.2 GHz, 68 Watts) (1) Dual-Core AMD Opteron 2220 Processor (2.8 GHz, 95 watts)
HP DL385G2 2218 2G 407424-xx1 **HP DL385G2 2216 2G** 408838-xx1 **HP DL385G2 2214 2G** 407429-xx1 **HP DL385G2 2220 2G** 438815-xx1	**Cache Memory**	2MB (2 x 1MB) Level 2 cache - 2000 Series
	Memory	2 GB (2 x 1 GB) PC2-5300 DIMMs (DDR2-667) with Advanced ECC capabilities
	Network Controller	Two Embedded NC373i Multifunction Gigabit Server Adapters
	Storage Controller	HP Smart Array P400/256MB Controller (RAID 0/1/5)
	Hard Drive	None ship standard
	Internal Storage	1.168TB max - 8 x 146GB SAS drives (with optional hard drives)
	Optical Drive	Optional DVD, DVD/CD-RW combo, DVD±R/RW or floppy drive
	Form Factor	Rack (2U), (3.5-inch)
	Availability	Hot Plug Fully Redundant Fans Standard

HP DL385 G2 Entry Models	**Processor(s)**	(1) Dual Core AMD Opteron 2210 HE Processor (1.8 GHz, 68 Watts)
	Cache Memory	2MB (2 x 1MB) Level 2 cache - 2000 Series
HP DL385G2 2210 1G 434940-xx1	**Memory**	1 GB (2 x 512 MB) PC2-5300 DIMMs (DDR2-667) with Advanced ECC capabilities
	Network Controller	Two Embedded NC373i Multifunction Gigabit Server Adapters
	Storage Controller	HP Smart Array E200/64MB Controller (RAID 0/1)
	Hard Drive	None ship standard
	Internal Storage	1.168TB max - 8 x 146GB SAS drives (with optional hard drives)
	Optical Drive	Optional DVD, DVD/CD-RW combo, DVD±R/RW or floppy drive
	Form Factor	Rack (2U), (3.5-inch)
	Availability	Hot Plug Fully Redundant Fans Standard

Models

Country Code Key	XX=00	U.S.
	XX=20	Brazil
	XX=29	Japan
	XX=37	APD
	XX=42	Euro
	XX=AA	PRC

Configuration Information - Factory Integrated Models (North America only)

NOTE: This section lists some of the steps required to configure a Factory Integrated Model. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for additional information.
NOTE: For Configure to Order requirements within EMEA region, please consult local Sales Contact.
NOTE: HP does not allow factory integration of options into standard models listed above.
Configure-to-order servers must start with a CTO Chassis.
NOTE: This product offering does not support HP Factory Express Server Configuration Level 1.
NOTE: FIO indicates that this option is only available as a Factory Installable Option.

Step 1: Base Configuration (choose one of the following configurable models)

Models	HP ProLiant DL385G2 Rack CTO Chassis	414109-B21
	Factory Integrated Model ships with:	
	(8) SFF Serial Attached SCSI (SAS) Drive Bays Two Embedded NC373i Multifunction Gigabit Server Adapters PCI-Express Riser Cage 800 Watt hot plug power supply, CE Mark Compliant One IEC Power cord Hot plug fans (fully redundant) Rack (2U), (3.5-inch)	

Step 1A: Choose SAS Controller (must choose only one of the following)

SAS Controllers	HP Smart Array P400/256 for DL380 G5/ DL385 G2 FIO Controller **NOTE:** PCI Express	405160-B21
	HP Smart Array P400/512 BBWC for DL380 G5/ DL385 G2 FIO Controller **NOTE:** PCI Express	405162-B21
	HP Smart Array E200/128 BBWC Controller **NOTE:** PCI Express	411508-B21
	HP Smart Array P600/256 BBWC Controller **NOTE:** PCI-X. SA-P600 Controller supports both internal and external drives.	337972-B21
	HP Smart Array P800/512 BBWC Controller **NOTE:** PCI Express	381513-B21
	HP Smart Array P800/512 BBWC Controller **NOTE:** PCI Express	381513-B21
	HP Smart Array E200/64 FIO Controller	405528-B21
	HP Smart Array 6402/512 FIO Controller	441508-B21
	HP Smart Array 6404/512 FIO CNTRLR	452240-B21

Configuration Information - Factory Integrated Models (North America only)

Step 2: Choose Required Options (only one of the following from each list unless otherwise noted)

Processors	AMD Opteron Processor 2222 (3.0 GHz, 95 Watts) FIO	451649-L21
	AMD Opteron Processor 2220 (2.8 GHz, 95 Watts) FIO	438825-L21
	AMD Opteron Processor 2218 (2.6 GHz, 95 Watts) FIO	407433-L21
	AMD Opteron Processor 2218 HE (2.6 GHz, 68 Watts) FIO	438824-L21
	AMD Opteron Processor 2216 (2.4 GHz, 95 Watts) FIO	434945-L21
	AMD Opteron Processor 2216 HE (2.4 GHz, 68 Watts) FIO	408840-L21
	AMD Opteron Processor 2214 HE (2.2 GHz, 68 Watts) FIO	407435-L21
	AMD Opteron Processor 2212 HE (2.0 GHz, 68 Watts) FIO	408837-L21
	AMD Opteron Processor 2210 HE (1.8 GHz, 68 Watts) FIO	434943-L21
	AMD Opteron Processor 2210 (1.8 GHz, 95 Watts) FIO	434947-L21
Base Memory	**NOTE:** DIMM banks are active only when the corresponding processor socket is populated.	
	1 GB PC2-5300 DDR2 2 x 512 MB Kit	408850-B21
	2 GB PC2-5300 DDR2 2 x 1 GB Kit	408851-B21
	4 GB PC2-5300 DDR2 2 x 2 GB Kit	408853-B21
	8 GB REG PC2-5300 (2 x 4GB) dual rank	408854-B21

Step 3: Choose Additional Factory Integratable Options

Performance Packs	The HP ProLiant DL385 G2 performance packs are necessary to configure a HP ProLiant DL385 G2 Performance Model. HP ProLiant DL385 G2 Performance model includes the latest performance technologies and enterprise class availability features pre-installed for convenience and value. The performance pack includes a 2nd processor and a redundant power supply. To complete the configuration of a Performance model, select the Slimline CD-RW/DVD-ROM Combo Option Kit (331903-B21).	
	HP DL385G2 2220 HPM FIO Perf Pack	442239-B21
	HP DL385G2 2218 HPM FIO Perf Pack	432858-B21

Step 4: Choose Additional Options for Factory Integration

NOTE: For additional options, please refer to the "Options" section below.

NOTE: Some options may not be factory integratable. Contact your local sales representative for additional information.

HP ProLiant DL385 G2 Unique Options	HP 2 Slot PCI-Express x16 & x4 Riser DL385G2 ALL	410571-B21
	HP PCI-X/PCI-E NHP RISER DL385G2 ALL	410570-B21

ProLiant Essentials Offerings	**ProLiant Essentials Value Pack**	
	Accelerated iSCSI Pack	
	ProLiant Essentials Accelerated iSCSI Pack, No Media, Single License **NOTE:** For use with a single NIC port. Contains one license with a unique license activation key and documentation. **NOTE:** For additional License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12466_div/12466_div.HTML	452679-B21
	Insight Control Environment	
	HP Insight Control Environment, No Media 1-Server License including 1 year of 24x7 Technical Support and Updates **NOTE:** For additional License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12631_div/12631_div.HTML	452148-B21
	ProLiant Essential RDMA Pack	
	HP ProLiant Essentials RDMA Pack for Embedded Multifunction Gigabit Server Adapters, No Media, 1-Server License **NOTE:** For additional License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12573_div/12573_div.HTML	452681-B21
	Rapid Deployment Pack	
	ProLiant Essentials Rapid Deployment Pack No Media 1-Server License including 1 year of 24x7 Technical Support and Updates **NOTE:** This license allows 1 server to be deployed and managed via RDP. **NOTE:** For additional License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/11053_div/11053_div.HTML	452151-B21
	Server Migration Pack	
	ProLiant Essentials Server Migration Pack, No Media, 1-Migration License, including 1 year of 24x7 Technical Support and Updates **NOTE:** This license allows 1 P2V, V2P, or V2V migration. Contains one license with a unique license activation key and documentation **NOTE:** For additional License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12328_div/12328_div.HTML	435663-B21
	Server Migration Pack - P2P	
	ProLiant Essentials Server Migration Pack - P2P Edition, 1- Migration License, - License Only, No Media **NOTE:** This license allows 1 migration. Contains one license with a unique license activation key and documentation **NOTE:** For additional License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12467_div/12467_div.HTML	417435-B21
	Virtual Machine Management Pack	
	ProLiant Essentials Virtual Machine Management Pack, No Media, 1-Server License, including 1 year of 24x7 Technical Support and Updates **NOTE:** For use with a single server. Contains one license with a unique license activation key and documentation. **NOTE:** For additional License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12328_div/12328_div.HTML	452153-B21
	Remote Management	
	Integrated Lights-Out Advanced Pack	

Options

	Integrated Lights-Out Advanced Pack, No Media ,1 Server License **NOTE:** For additional License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/10861_div/10861_div.HTML	452141-B21
	Integrated Lights-Out Select Pack	
	Integrated Lights-Out Select Pack, No Media, 1 Server License **NOTE:** For additional License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/10861_div/10861_div.HTML	452158-B21
	NOTE: Flexible and volume quantity license kits are available for ProLiant Essentials Value Packs. Refer to http://www.hp.com/servers/proliantessentials or the various ProLiant Essentials Value Pack product QuickSpecs for more information. **NOTE:** For more information regarding ProLiant Essentials Software, please see the following URL: http://www.hp.com/servers/proliantessentials.	
ProLiant Software Maintenance Subscription	ProLiant Software Maintenance Single Release **NOTE:** Please see the SmartStart QuickSpecs for additional information regarding the subscription purchase: http://h18000.www1.hp.com/products/quickspecs/Division/11073.html (Worldwide)	356573-B21
Processors	AMD Opteron Processor 2222 (3.0 GHz, 95 Watts)	451649-B21
	AMD Opteron Processor 2220 (2.8 GHz, 95 Watts)	438825-B21
	AMD Opteron Processor 2218 (2.6 GHz, 95 Watts)	407433-B21
	AMD Opteron Processor 2218 HE (2.6 GHz, 68 Watts)	438824-B21
	AMD Opteron Processor 2216 (2.4 GHz, 95 Watts)	434945-B21
	AMD Opteron Processor 2216 HE (2.4 GHz, 68 Watts)	408840-B21
	AMD Opteron Processor 2214 HE (2.2 GHz, 68 Watts)	407435-B21
	AMD Opteron Processor 2212 HE (2.0 GHz, 68 Watts)	408837-B21
	AMD Opteron Processor 2210 (1.8 GHz, 95 Watts)	434947-B21
	AMD Opteron Processor 2210 HE (1.8 GHz, 68 Watts)	434943-B21
Memory	1 GB PC2-5300 DDR2 2 x 512 MB Kit	408850-B21
	2 GB PC2-5300 DDR2 2 x 1 GB Kit	408851-B21
	4 GB PC2-5300 DDR2 2 x 2 GB Kit	408853-B21
	8 GB REG PC2-5300 (2 x 4GB) dual rank	408854-B21
Optical Drives	Slimline CD-RW/DVD-ROM Combo Option Kit **NOTE:** Included in performance models.	331903-B21
	Slimline DVD-ROM Drive (8x/24x) Option Kit	264007-B21
	HP DVD±R/RW 8X Slim	383975-B21
	Slimline CD-ROM Drive 24X	356963-B21

Options

Hard Drives	**Hot Plug SFF SAS 2.5" Drives**	
	HP 36GB 3G SAS 10K SFF SP HDD	375859-B21
	HP 36GB 3G SAS 15K SFF SP HDD	431933-B21
	HP 36GB 3G SAS 15K SFF DP HDD	418369-B21
	HP 72GB 3G SAS 10K SFF SP HDD	375861-B21
	HP 72GB 3G SAS 10K SFF DP HDD	384842-B21
	HP 72GB 3G SAS 15K SFF SP HDD	431935-B21
	HP 72GB 3G SAS 15K SFF DP HDD	418371-B21
	HP 146GB 3G SAS 10K SFF SP HDD	431958-B21
	HP 146GB 3G SAS 10K SFF DP HDD	418367-B21
	NOTE: Please see the SAS Hard Drive QuickSpecs for Technical Specifications such as capacity, height, width, interface, transfer rate, seek time, physical configuration, and operating temperature: http://h18000.www1.hp.com/products/quickspecs/12244_div/12244_div.HTML (Worldwide)	
	SFF SATA Hot Plug	
	HP 120GB 1.5G SATA 5.4K SFF HDD	431786-B21
	HP 60GB 1.5G SATA 5.4K SFF HDD	379306-B21
	NOTE: SATA drives have a 1 year warranty. Please see the SATA Hard Drive QuickSpecs for Technical Specifications such as capacity, height, width, interface, transfer rate, seek time, physical configuration, and operating temperature: http://h18000.www1.hp.com/products/quickspecs/11940_div/11940_div.HTML (Worldwide)	
Storage Controllers	**SAS Controllers**	
	Smart Array E200 Controller	
	HP Smart Array E200/128 BBWC Controller	411508-B21
	128-MB BBWC (Battery-Backed Write Cache) Enabler **NOTE:** Supports the Smart Array E200 Controller, Smart Array 641 Controller, and Smart Array 642 Controller.	351580-B21
	Smart Array P400 Controller	
	HP Smart Array P400/256MB Controller	405132-B21
	HP Smart Array P400/512MB BBWC Controller	411064-B21
	512MB Battery-backed cache upgrade **NOTE:** For Smart Array P400 Controller.	405148-B21
	Battery-backed write cache upgrade **NOTE:** For Smart Array P400 Controller.	383280-B21
	Smart Array P400 Battery Attach Kit **NOTE:** This option kit contains a 24" battery cable and adhesive material for installing a battery into the server if a Smart Array P400 is integrated outside of the factory. For all solutions, please refer to the server QuickSpecs and User's Manual for detailed installation instructions.	417836-B21
	Smart Array P600 Controller	
	HP Smart Array P600/256 BBWC Controller **NOTE:** Requires Mixed PCI-E/X riser cage.	337972-B21
	512 MB Battery-Backed Cache Upgrade **NOTE:** This 512-MB Battery-Backed Cache Module upgrade kit supports the Smart Array P600 Controller and the Smart Array 6400 series Controller.	372538-B21
	Smart Array P800 Controller	

Options

HP Smart Array P800/512 BBWC Controller	381513-B21
NOTE: Please see the following Controller QuickSpecs for Technical Specifications such as PCI Bus, PCI Peak Data Transfer Rate, SCSI Protocols supported, SCSI Peak Data Transfer Rate, Channels, SCSI Ports, Drives supported, Cache, RAID support, and additional information: http://h18000.www1.hp.com/products/quickspecs/12460_div/12460_div.HTML (Smart Array E200 Controller) http://h18000.www1.hp.com/products/quickspecs/12400_div/12400_div.HTML (Smart Array P400 Controller) http://h18000.www1.hp.com/products/quickspecs/12247_div/12247_div.HTML (Smart Array P600 Controller) http://h18000.www1.hp.com/products/quickspecs/12616_div/12616_div.HTML (Smart Array P800 Controller)	
SAS HBA	
HP SC44Ge Host Bus Adapter	416096-B21
HP 8 Internal Port SAS HBA with RAID	347786-B21
NOTE: Please see the following QuickSpecs for additional information: http://h18004.www1.hp.com/products/quickspecs/12617_div/12617_div.html (SC44Ge HBA) http://h18004.www1.hp.com/products/quickspecs/12332_div/12332_div.html (SAS HBA)	
SCSI Controllers for External Drive/Storage Support **NOTE:** All Ultra 320 controllers are PCI-X and require the Mixed Riser Cage Option Kit (PCI-E/PCI-X).	
Smart Array 6402/128 Controller **NOTE:** Ultra320 SCSI.	273915-B21
Smart Array 6404/256 Controller **NOTE:** Ultra320 SCSI.	273914-B21
Smart Array 642 Controller **NOTE:** Ultra320 SCSI.	291967-B21
128-MB Battery-Backed Write Cache (BBWC) **NOTE:** Supports the Smart Array E200 Controller, Smart Array 641 Controller, and Smart Array 642 Controller.	351580-B21
Ultra320 Expansion Module for SA-6402	273911-B21
64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2	374654-B21
SCSI HBA	
HP SC11Xe Host Bus Adapter	412911-B21
NOTE: Please see the following QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/11943_div/11943_div.HTML (Single Channel Ultra320 SCSI HBA) http://h18000.www1.hp.com/products/quickspecs/11587_div/11587_div.HTML (Smart Array 6400 Series) http://h18000.www1.hp.com/products/quickspecs/12069_div/12069_div.HTML (Smart Array 642) http://h18000.www1.hp.com/products/quickspecs/12566_div/12566_div.HTML (SC11Xe HBA)	

Options

Communications	HP NC110T PCI Express Gigabit Server Adapter **NOTE:** Does not support Windows 2000.	434905-B21
	HP NC150T PCI 4-port Gigabit 1000T Combo Switch Adapter	367132-B21
	HP NC360T PCI Express Dual Port Gigabit Server Adapter	412648-B21
	HP NC364T PCI Express Quad Port Gigabit Server Adapter **NOTE:** Does not support Windows 2000.	435508-B21
	HP NC373F PCI Express Multifunction Gigabit Server Adapter	394793-B21
	HP NC373T PCI Express Multifunction Gigabit Server Adapter	394791-B21
	HP NC380T PCI Express Dual Port Multifunction Gigabit Server Adapter	394795-B21
	HP NC510F PCIe 10 Gigabit Server Adapter **NOTE:** A minimum of 1 gigabyte (1 GB) of server memory is required per each NC510F adapter.	414126-B21
	HP NC510C PCIe 10 Gigabit Server Adapter **NOTE:** A minimum of 1 gigabyte (1 GB) of server memory is required per each NC510C adapter.	414129-B21
	HP NC7771 PCI-X 1000T Gigabit Server Adapter	290563-B21
	HP IB 4X SDR PCI-e single PORT HCA	431038-B21
	HP IB 4X DDR PCI-e Single PORT HCA	431039-B21
	HP IB 4X DDR PCI-e SINGLE PORT HCA	448398-B21

Redundant Options	Redundant Power Supply 350/370/380 G5 AU Kit	399771-011
	Redundant Power Supply 350/370/380 G5 EU Kit	399771-021
	Redundant Power Supply 350/370/380 G5 JP Kit	399771-291
	Redundant Power Supply 350/370/380 G5 Worldwide Kit	399771-B21
	Redundant Power Supply 350/370/380 G5 UK Kit	399771-031
	Redundant Power Supply 350/370/380 G5 US Kit	399771-001
	Redundant Power Supply 380 G5 Worldwide Kit - 48Volt DC	433634-B21

Tape Drives	**NOTE:** For the complete listing of Tape Drive offerings, please see: http://www.hp.com/products1/storage/compatibility/tapebackup/ISS/index.html	
	For recommended tape drive offerings for this ProLiant server see the following:	
	USB Tape Drives	
	HP StorageWorks 1U USB Rack-Mount Kit with one DAT 72 USB Tape Drive	AG594A
	HP StorageWorks 1U USB Rack-Mount Kit with one DAT 160 USB Tape Drive	AG703A
	SAS Tape Drives **NOTE:** For the DL385 G2, HP recommends purchasing the HP SC44Ge HBA (416096-B21) for a dedicated SAS HBA for tape. **NOTE:** For a complete list of suitable SAS cables for connecting SAS tape drives to this server, please see the "Cables and Adapters" section of the HP Ultrium Half-Height Tape Drives QuickSpecs located at: http://h18006.www1.hp.com/products/quickspecs/12128_div/12128_div.html	
	HP StorageWorks LTO-2 Ultrium 448 SAS Internal Tape Drive **NOTE:** HP recommends combining this tape drive with the 1U SAS Rack-Mount kit (AE459A) for a complete rack-mount solution.	DW085A
	HP StorageWorks LTO-3 Ultrium 920 SAS Internal Tape Drive **NOTE:** HP recommends combining this tape drive with the 1U SAS Rack-Mount kit (AE459A) for a complete rack-mount solution.	EH847A

Options

NOTE: Please refer to the "Tape Drives, Tape Autoloaders & Tape Libraries" table in the Storage section of this document for a list of SAS controllers with tape support.

Ultrium Tape Drives

HP StorageWorks LTO-1 Ultrium 232 Internal Tape Drive (Carbonite) **NOTE:** HP recommends combining this tape drive with the 1U SCSI Rack-Mount kit (A7445B) for a complete rack-mount solution.	DW064A
HP StorageWorks 1U SCSI Rack-mount kit with one LTO-2 Ultrium 448 SCSI Tape Drive (Carbonite)	DW028B
HP StorageWorks 1U SCSI Rack-mount kit with one LTO-3 Ultrium 920	EH903A

NOTE: Please see the HP StorageWorks Ultrium Tape Drive QuickSpecs for additional options such as controllers, media, and other related items:
http://h18006.www1.hp.com/products/quickspecs/11739_div/11739_div.html (Worldwide)
http://h18006.www1.hp.com/products/quickspecs/12128_div/12128_div.html (Worldwide)
For an up-to-date listing of the latest O/S and software support details for HP Ultrium tape drives, please visit: http://www.hp.com/go/connect.

SCSI DAT Drives

HP StorageWorks DAT 160 SCSI External Tape Drive **NOTE:** HP recommends combining this tape drive with the 1U SCSI Rack-Mount kit (A7445B) for a complete rack-mount solution.	Q1574A

NOTE: Please see the DAT Tape Drive QuickSpecs for controllers, media, and other options:
http://h18000.www1.hp.com/products/quickspecs/11883_div/11883_div.HTML (Worldwide)
For an up-to-date listing of the latest O/S and software support details for HP DAT drives, please visit: http://www.hp.com/go/connect

Rack-Mount Tape Drive Enclosures

HP StorageWorks 1U SCSI Rack-Mount kit **NOTE:** The 1U Rack-Mount Kit can support up to (2) half-height tape drives and is compatible with multiple Single-Ended and LVD SCSI tape drives including the DAT 40, DAT 72, DAT 160, DLT VS160, LTO-1 Ultrium 232, LTO-2 Ultrium 448 and LTO-3 Ultrium 920 tape drives.	A7445B
HP StorageWorks 1U USB Rack-Mount Kit **NOTE:** The 1U USB Rack-Mount Kit can support up to (2) half-height tape drives and is compatible with the DAT 40 USB, DAT 72 USB and DAT 160 USB tape drives.	A8007A
HP StorageWorks 1U SAS Rack-Mount Kit **NOTE:** The 1U SAS Rack-Mount Kit can support up to (2) half-height tape drives and is compatible with the LTO-2 Ultrium 448 SAS and LTO-3 Ultrium 920 SAS tape drives.	AE459A

NOTE: Please see the Rack-Mount Tape Drive Kits QuickSpecs for additional information regarding these kits:
http://h18000.www1.hp.com/products/quickspecs/10854_div/10854_div.HTML (Worldwide)

Options

HP D2D Backup System	HP StorageWorks D2D110 Backup System **NOTE:** 1TB of Disk Storage.	EH880A
	HP StorageWorks D2D110 Backup System with Data Protector Express Software Kit **NOTE:** 1TB of Disk Storage.	EH923A
	HP StorageWorks D2D120 Backup System **NOTE:** 2TB of Disk Storage.	EH884A
	HP StorageWorks D2D120 Backup System with Data Protector Express Software Kit **NOTE:** 2TB of Disk Storage.	EH924A
	NOTE: Please see the HP D2D Backup Systems QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/12651_div/12651_div.HTML (Worldwide)	
Tape Autoloaders	**HP StorageWorks DAT Autoloader**	
	HP StorageWorks DAT 72x10 tape autoloader	AE313B
	HP StorageWorks 1/8 Tape Autoloader	AF204A
	HP StorageWorks 1/8 G2 LTO-3 Ultrium 920 Tape Autoloader	AH165A
	HP StorageWorks 1/8 G2 LTO-2 Ultrium 448 Tape Autoloader	AH164A
	HP StorageWorks 1/8 G2 LTO-1 Ultrium 232 Tape Autoloader	AH163A
	HP StorageWorks 1/8 G2 Tape Autoloader Rack Kit **NOTE:** Required to install the 1/8 G2 Autoloaders in a standard 19-inch rack; includes rails and rackmount instructions	AH166A
	NOTE: Please reference the Tape Autoloader QuickSpecs at http://www.hp.com/go/automation for additional information needed to create a complete solution.	
Tape Libraries	**HP StorageWorks MSL2024 Tape Library**	
	HP StorageWorks MSL2024 1 LTO-3 Ultrium 960 SCSI Drive Library	AG115A
	HP StorageWorks MSL2024 1 LTO-3 Ultrium 960 4GB FC Library	AG326B
	HP StorageWorks MSL2024 1 LTO-3 Ultrium 920 SAS Drive Library	AH559A
	HP StorageWorks MSL2024 1 LTO-3 Ultrium 920 SCSI Drive Library	AH169A
	HP StorageWorks MSL2024 2 LTO-3 Ultrium 920 SCSI Drive Library	AH170A
	HP StorageWorks MSL2024 1 LTO-2 Ultrium 448 SCSI Drive Library	AG116A
	HP StorageWorks MSL2024 2 LTO-2 Ultrium 448 SCSI Drive Library	AG117A
	HP StorageWorks MSL4048 Tape Library	
	HP StorageWorks MSL4048 1 LTO-2 Ultrium 448 SCSI Drive Library	AG320A
	HP StorageWorks MSL4048 2 LTO-2 Ultrium 448 SCSI Drive Library	AG321A
	HP StorageWorks MSL4048 1 LTO-3 Ultrium 920 SAS Drive Library	AH560A
	HP StorageWorks MSL4048 1 LTO-3 Ultrium 920 SCSI Tape Library	AH171A
	HP StorageWorks MSL4048 2 LTO-3 Ultrium 920 SCSI Tape Library	AH172A
	HP StorageWorks MSL4048 1 LTO-3 Ultrium 960 SCSI Drive Library	AG322A
	HP StorageWorks MSL4048 1 LTO-3 Ultrium 960 4GB FC Library	AG324B
	HP StorageWorks MSL4048 2 LTO-3 Ultrium 960 SCSI Drive Library	AG323A
	HP StorageWorks MSL4048 2 LTO-3 Ultrium 960 4GB FC Library	AG325B
	HP StorageWorks MSL8096 Tape Library	
	HP StorageWorks MSL8096 2 LTO-3 Ultrium 920 SAS Drive Library	AH561A

Options

	HP StorageWorks MSL8096 2 LTO-3 Ultrium 960 4GB FC Library	AH218A
	HP StorageWorks MSL8096 2 LTO-3 Ultrium 960 SCSI Drive Library	AH219A
	HP StorageWorks MSL6000 Tape Library	
	Ultrium 960 technology	
	HP StorageWorks MSL6030 1 LTO-3 Ultrium 960 SCSI Drive Library	AD606B
	HP StorageWorks MSL6030 1 LTO-3 Ultrium 960 4GB FC Library	AD608B
	HP StorageWorks MSL6030 2 LTO-3 Ultrium 960 SCSI Drive Library	AD607B
	HP StorageWorks MSL6030 2 LTO-3 Ultrium 960 4GB FC Library	AD609B
	NOTE: Please reference the MSL2024, MSL4048 and MSL6000 Tape Library QuickSpecs at http://www.hp.com/go/automation for additional information needed to create a complete solution; reference current compatibility information at http://www.hp.com/go/ebs	
Cluster Options	ProLiant Cluster Starter Kit	364023-B22
	NOTE: For additional information regarding the ProLiant Cluster Starter Kit please see the following QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/11935_div/11935_div.html (Worldwide)	
	HP HA/F200 for Entry SAN Cluster	364026-B22
	NOTE: For additional information regarding the ProLiant Cluster for Entry Level SAN please see the following QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/11932_div/11932_div.html (Worldwide)	
	NOTE: For configuration/certification options for the HP Parallel Database Cluster for Oracle RAC please go to: http://www.hp.com/solutions/highavailability/oracle	
	HP Serviceguard for Linux ProLiant Cluster A.11.16 for SUSE SLES 9 & 10 and Red Hat EL 3 & 4 (2 node license cluster kit)	305199-B26
	HP Serviceguard for Linux, A.11.18 (single license version - Red Hat EL 4&5, SUSE SLES 9&10)	305199-B27
	HP Serviceguard for Linux A.11.16 for SUSE SLES 9 & 10 and Red Hat EL 3 & 4 (single license version)	307754-B26
	HP Serviceguard for Linux ProLiant Cluster, A.11.18 (2 license version - Red Hat EL 4&5, SUSE SLES 9&10)	307754-B27
	HP Serviceguard for Linux and Red Hat Global File System - 1 year subscription	T2798AA#001
	HP Serviceguard for Linux and Red Hat Global File System - 3 years subscription	T2798AA#003
	NOTE: For additional information regarding HP Serviceguard for Linux, please see the following QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/11518_div/11518_div.html (Worldwide)	
	NOTE: For configuration/certification options for HP Serviceguard for Linux please go to: http://www.hp.com/info/sglx	

Options

StorageWorks Options	**StorageWorks Fibre Channel HBA**	
	NOTE: For the complete listing of Fibre Channel Host Bus Adapters for Windows 2000, Windows Server 2003 and Linux, please see: http://h18006.www1.hp.com/storage/saninfrastructure/hba.html	
	HP StorageWorks FC2142SR 4Gb PCI-e HBA	A8002A
	HP StorageWorks FC1142SR 4Gb PCI-e HBA	AE311A
	HP StorageWorks FC2143 4Gb PCI-X 2.0 -to-Fibre Channel HBA	AD167A
	HP StorageWorks FC2243 Dual Channel 4Gb PCI-X 2.0 HBA	AD168A
	HP StorageWorks FC1143 4Gb PCI-X 2.0 HBA	AB429A
	HP StorageWorks FC1243 Dual Channel 4Gb PCI-X 2.0 HBA	AE369A
	StorageWorks SCSI HBA	
	HP U320e SCSI Host Bus Adapter	AH627A
	NOTE: Recommended Dual Channel Ultra320 SCSI Controller for connecting multi-drive MSL tape libraries to ProLiant servers.	
HP StorageWorks Modular Smart Array 50	HP StorageWorks Modular Smart Array 50 Enclosure	364430-B21
	NOTE: Please see the Modular Smart Array 50 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/12245_div/12245_div.HTML (Worldwide)	
HP StorageWorks Modular Smart Array 60	HP StorageWorks 60 Modular Smart Array Enclosure	418408-B21
	NOTE: Please see the Modular Smart Array 60 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/12627_div/12627_div.HTML (Worldwide)	
HP StorageWorks Modular Smart Array 70	HP StorageWorks 70 Modular Smart Array Enclosure	418800-B21
	NOTE: Please see the Modular Smart Array 70 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/12652_div/12652_div.html (Worldwide)	
HP StorageWorks Modular Smart Array 500 G2	HP StorageWorks Modular Smart Array 500 Generation 2	335880-B21
	NOTE: Please see the Modular Smart Array 500 Generation 2 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/11956_div/11956_div.HTML (Worldwide)	
Uninterruptible Power Systems - Rack	HP R1.5 VA 1U UPS INTL	AF418A
	HP R1.5 VA 1U UPS JPN	AF421A
	HP R1.5 VA 1U UPS NA	AF419A
	HP R/T2200 2-U ERM	AF412A

Options

USB Options	HP USB 2-Button Optical Scroll Mouse (Carbonite/Silver)	DC172B
	USB 1.44-MB External Diskette Drive (Carbonite)	DC141B
	HP USB 04 Standard Keyboard	DT528A#ABA
	HP 1GB USB 2.0 Floppy Drive Key	442085-B21
	HP 256MB USB 2.0 Floppy Drive Key	442084-B21
Third Party Rack Adapter Kit (for wide racks)	Rack Adapter Kit **NOTE:** Not required for most racks. This kit allows HP rack servers to fit in racks that are 24" wide.	332815-B21
HP Rack 5000 Series (Graphite Metallic)	HP 5642 Rack-Unassembled **NOTE:** Please see the HP Rack 5642 QuickSpecs for additional part numbers and Technical Specifications such as height, width, depth, weight, and color: http://h18000.www1.hp.com/products/quickspecs/12074_div/12074_div.HTML (Worldwide) **NOTE:** For additional information regarding Rack Cabinets, please see the following URL: http://www.hp.com/go/rackandpower.	358254-B21
HP Rack 10000 G2 Series (Carbon/Graphite Metallic)	10642 G2 (42U) Rack Cabinet - Pallet	AF001A
	10642 G2 (42U) Rack Cabinet - Shock Pallet	AF002A
	10642 G2 (42U) Rack Cabinet - Crated	AF003A
	10642 G2 (42U) Rack Cabinet, with Extension - Shock Pallet	AF004A
	10636 G2 (36U) Rack Cabinet - Pallet	AF011A
	10636 G2 (36U) Rack Cabinet - Shock Pallet	AF012A
	10636 G2 (36U) Rack Cabinet - Crated	AF013A
	10636 G2 (36U) Rack Cabinet, with Extension - Shock Pallet	AF014A
	10622 G2 (22U) Rack Cabinet - Pallet	AF021A
	10622 G2 (22U) Rack Cabinet - Shock Pallet	AF022A
	10842 G2 (42U) 800mm Wide Rack Cabinet - Pallet	AF041A
	10842 G2 (42U) 800mm Wide Rack Cabinet - Shock Pallet	AF042A
	10647 G2 (47U) Rack Cabinet - Pallet	AF031A
	NOTE: It is mandatory to use a shock pallet when shipping racks with equipment installed. **NOTE:** Please see the Rack 10000 G2 QuickSpecs for Technical Specifications such as height, width, depth, weight, and color: http://h18000.www1.hp.com/products/quickspecs/12402_div/12402_div.HTML (Worldwide) **NOTE:** For additional information regarding Rack Cabinets, please see the following URL: http://www.hp.com/go/rackandpower.	

Options

HP Rack 10000 Series (Graphite Metallic)	HP S10614 (14U) Rack Cabinet - Shock Pallet	292302-B22
	NOTE: xxxxxx-B21 (pallet) used to ship empty racks shipped on a truck. -B22 (shock pallet) used to ship racks with equipment installed (by custom systems, VARs and Channels). xxxxxx-B23 (crated) used for air shipments of empty racks.	
	NOTE: It is mandatory to use a shock pallet in order to ship racks with equipment installed. Not all HP or Compaq equipment is qualified to be shipped in the Rack 10000 series.	
	NOTE: Please see the Rack 10000 QuickSpecs for Technical Specifications such as height, width, depth, weight, and color: http://h18000.www1.hp.com/products/quickspecs/10995_div/10995_div.HTML (Worldwide)	
	NOTE: For additional information regarding Rack Cabinets, please see the following URL: http://www.hp.com/go/rackandpower	

Keyboards and Monitors	TFT7210R Rack Mounted 17" Monitor	348373-B21
	TFT7600 Rackmount Keyboard Monitor US	AG052A
	TFT7600 Rackmount Keyboard Monitor UK	AG053A
	TFT7600 Rackmount Keyboard Monitor GR	AG054A
	TFT7600 Rackmount Keyboard Monitor FR	AG055A
	TFT7600 Rackmount Keyboard Monitor IT	AG056A
	TFT7600 Rackmount Keyboard Monitor SP	AG057A
	TFT7600 Rackmount Keyboard Monitor DEN	AG058A
	TFT7600 Rackmount Keyboard Monitor NOR	AG059A
	TFT7600 Rackmount Keyboard Monitor SE/FI	AG060A
	TFT7600 Rackmount Keyboard Monitor SWI	AG061A
	TFT7600 Rackmount Keyboard Monitor PORT	AG062A
	TFT7600 Rackmount Keyboard Monitor BEL	AG063A
	TFT7600 Rackmount Keyboard Monitor JPN2	AG064A
	TFT7600 Rackmount Keyboard Monitor RUS	AG065A
	TFT7600 Rackmount Keyboard Monitor INTL	AG066A
	1U Rackmount Keyboard with USB, US	AG072A
	1U Rackmount Keyboard with USB, UK	AG073A
	1U Rackmount Keyboard with USB, GR	AG074A
	1U Rackmount Keyboard with USB, FR	AG075A
	1U Rackmount Keyboard with USB, ITL	AG076A
	1U Rackmount Keyboard with USB, SP	AG077A
	1U Rackmount Keyboard with USB, DEN	AG078A
	1U Rackmount Keyboard with USB, NOR	AG079A
	1U Rackmount Keyboard with USB, SE/FI	AG080A
	1U Rackmount Keyboard with USB, SWI	AG081A
	1U Rackmount Keyboard with USB, PORT	AG082A
	1U Rackmount Keyboard with USB, BEL	AG083A
	1U Rackmount Keyboard with USB, JPN2	AG084A
	1U Rackmount Keyboard with USB, RUS	AG085A
	1U Rackmount Keyboard with USB, INTL	AG086A
	NOTE: For additional information regarding Rack Options, please see the following URL: http://www.hp.com/go/rackandpower.	

HP KVM Switch Options	2x1x16 IP Console Switch with Virtual Media	AF601A
	4x1x16 IP Console Switch with Virtual Media	AF602A
	2x16 Server Console Switch with Virtual Media	AF600A
	PS/2 Virtual Media Interface Adapter, 1 pack **NOTE:** Requires PS/2 and one USB port on server.	AF604A
	Server Console Switch (KVM), 0 x 1 x 8 port	336044-B21
	Server Console Switch (KVM), 0 x 2 x 16 port	336045-B21
	PS/2 Interface Adapter, 1 pack	262588-B21
	PS/2 Interface Adapter, 8 pack	262587-B21
	USB Interface Adapter, 1 pack	336047-B21
	Serial Interface adapter - 1 Pack with power supply	373035-B21
	NOTE: Cat5e cables are required to connect Interface Adapters to Console Switches. Cat5e cables can be found at the following URL: http://www.hp.com/go/kvm.	
	HP 1x4 Console Switch (ALL)	AF611A
	PS2 Server Console Cable, 6 ft, 2 pack	AF612A
	USB Server Console Cable, 6 ft, 2 pack **NOTE:** required for supporting USB peripherals.	AF613A
	NOTE: For additional information regarding KVM switches, Serial Console servers, rack mount monitors, keyboards and all related options please see the following URL: http://www.hp.com/go/kvm.	

HP Serial Console Server Options	HP 16 Port Serial Console Server (worldwide)	AF101A
	HP 48 Port Serial Console Server (worldwide)	AF102A
	Serial Adapter, RJ45-DB9 DCE Female, 1 Pack	AF103A
	Serial Adapter, RJ45-DB9 DCE Female, 8 Pack	AF110A
	NOTE: Cat5e cables are required to connect Serial Adapters to Serial Console Servers. Additional Serial Adapters and Cat5e cables can be found at the following URL: http://www.hp.com/go/kvm.	
	NOTE: For additional information regarding KVM switches, Serial Console servers, rack mount monitors, keyboards and all related options please see the following URL: http://www.hp.com/go/kvm.	

Options

Service and Support Offerings (HP Care Pack Services)

Hardware Services On-site Service

4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years, Electronic	U4544E
4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	U4545E

Hardware Services 6-Hour Call to Repair On-site Service

6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	U4546E

Installation & Start-up Services

Hardware Installation, Electronic	U4554E
Installation & Start-Up of a ProLiant server and Microsoft or Linux O/S per the Customer Description and/or Data Sheet. To be delivered on a scheduled basis 8am-5pm, M-F, excl. HP holidays, Electronic	U4555E
Installation and Startup for Essentials Rapid Deployment Pack, Electronic	U5683E

Support Plus

Onsite HW support, 8am-9pm, M-F, 4hr response and Microsoft O/S SW Tech support offsite, onsite at HP's discretion, 8am-9pm, M-F 2hr response time excl. HP holidays, Electronic	U4556E

Support Plus 24

Onsite HW support 24x7, 4hr response and Microsoft O/S SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays, Electronic	U4557E
Onsite HW support 24x7, 4hr response and SuSE Linux SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays, Electronic	U6312E
Onsite HW support 24x7, 4hr response and Red Hat ES Linux SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays, Electronic	U8334E

NOTE: For more information, customer/resellers can contact http://www.hp.com/services/carepack

Memory

NOTE: Memory configurations listed do not apply to "Factory Integrated Models".

HP ProLiant DL385 G2 Base Models

Standard Memory
2 GB PC2-5300 DDR2 DIMMs (667 MHz) installed (2 x 1 GB)

Upgrading Memory and Memory Interleaving
DIMMs must be installed in identical pairs. Bank interleaving is automatically enabled on a processor node under the following conditions:
1) Four single ranked DIMMs populated per node (4 x 512 MB or 4 x 1 GB for example) yields 2-way bank interleaving.
2) Two dual ranked DIMMs populated per node (2 x 2 GB or 2 x 4 GB for example) yields 2-way bank interleaving.
3) Four dual ranked DIMMs populated per node (4 x 2 GB for example) yields 4-way bank interleaving.
If single and dual ranked DIMMs are mixed on the same node, bank interleaving will not be enabled.

Node interleaving can be configured via RBSU if both processors have the same memory footprint and it is independent of bank interleaving.

DIMMs must be installed in decreasing capacity with the largest DIMMs installed in the banks furthest away from each processor.

Standard Memory Plus Optional Memory
Up to 26 GB memory is available with the standard memory of 1GB and the optional installation of PC2-5300 DDR2 DIMMs (667 MHz) memory kits. - 6 slots would be available, and potentially could be filled with 4GB DIMMs.

Standard Memory Replaced with Optional Memory
Up to 32 GB of memory is available with the removal of the standard 1GB of memory and the optional installation of PC2-5300 DDR2 4 GB DIMMs (667 MHz) memory kits.

NOTE: Chart does not represent all possible configurations.
NOTE: DIMM banks are active only when the corresponding processor socket is populated.

Memory		Slot							
		1	2	3	4	5	6	7	8
Standard	2 GB	1 GB	1 GB	Empty	Empty	Empty	Empty	Empty	Empty
Optional	26 GB	4 GB	4 GB	1 GB	1 GB	4 GB	4 GB	4 GB	4 GB
Maximum	32 GB	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB

Following are memory options available from HP:

1 GB PC2-5300 DDR2 2 x 512 MB Kit	408850-B21
2 GB PC2-5300 DDR2 2 x 1 GB Kit	408851-B21
4 GB PC2-5300 DDR2 2 x 2 GB Kit	408853-B21
8 GB REG PC2-5300 (2 x 4GB) dual rank	408854-B21

Memory

HP ProLiant DL385 G2 Performance Models

Standard Memory
4 GB PC2-5300 DDR2 DIMMs (667 MHz) (4 x 1GB)

Upgrading Memory and Memory Interleaving
DIMMs must be installed in identical pairs. Bank interleaving is automatically enabled on a processor node under the following conditions:
1) Four single ranked DIMMs populated per node (4x512 MB or 4x1 GB for example) yields 2-way bank interleaving.
2) Two dual ranked DIMMs populated per node (2x2 GB or 2x4 GB for example) yields 2-way bank interleaving.
3) Four dual ranked DIMMs populated per node (4x2 GB or 4x4 GB for example) yields 4-way bank interleaving.
If single and dual ranked DIMMs are mixed on the same node, bank interleaving will not be enabled.

Node interleaving can be configured via RBSU if both processors have the same memory footprint and it is independent of bank interleaving.

DIMMs must be installed in decreasing capacity with the largest DIMMs installed in the banks furthest away from each processor.

Standard Memory Plus Optional Memory
Up to 20 GB memory is available with the standard memory of 4*1 GB and the optional installation PC2-5300 DDR2 DIMMs (667 MHz) memory kits. - 4 slots available (4*4 GB = 16GB + 4*1 GB standard = 20 GB).

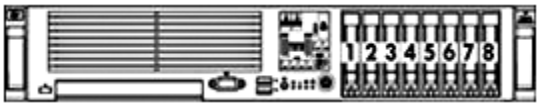
Standard Memory Replaced with Optional Memory
Up to 32 GB of memory is available with the removal of the standard 1GB of memory and the optional installation of PC2-5300 DDR2 4 GB DIMMs (667 MHz) memory kits.

NOTE: Chart does not represent all possible configurations.

Memory		Slot							
		1	2	3	4	5	6	7	8
Standard	4 GB	1 GB	1 GB	Empty	Empty	1 GB	1 GB	Empty	Empty
Optional	20 GB	4 GB	4 GB	1 GB	1 GB	4 GB	4 GB	1 GB	1 GB
Maximum	32 GB	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB	4 GB

Following are memory options available from HP:

1 GB PC2-5300 DDR2 2 x 512 MB Kit	408850-B21
2 GB PC2-5300 DDR2 2 x 1 GB Kit	408851-B21
4 GB PC2-5300 DDR2 2 x 2 GB Kit	408853-B21
8 GB REG PC2-5300 (2 x 4GB) dual rank	408854-B21



1-8 Eight SFF SAS hot plug hard drive bays

Drive Support

	Quantity Supported	Position Supported	Controller
Removable Media			
Slimline CD-RW/DVD-ROM Combo Option Kit **NOTE:** Included in performance models	Only 1 available removable media bay	Slimline bay	Integrated IDE **NOTE:** Optional
Slimline DVD-ROM Drive (8x/24x) Option Kit	Only 1 available removable media bay	Slimline bay	Integrated IDE **NOTE:** Optional
HP DVD±R/RW 8X Slim	Only 1 available removable media bay	Slimline bay	Integrated IDE **NOTE:** Optional

Hard Drives

SAS - Hot Plug Drives

	Quantity Supported	Position Supported	Controller
146GB 3G SAS 10K SP 146GB 3G SAS 10K DP 72GB 3G SAS 10K SP 72GB 3G SAS 10K DP 72GB 3G SAS 15K SP 72GB 3G SAS 15K DP 36GB 3G SAS 10K SP 36GB 3G SAS 15K SP 36GB 3G SAS 15K DP	Up to 8	1-8	HP Smart Array E200/64MB Controller HP Smart Array E200/128 BBWC Controller HP Smart Array P400/256MB Controller HP Smart Array P400/512MB BBWC Controller HP Smart Array P600/256 BBWC Controller **NOTE:** Optional mixed PCI-X/E required for SA-P600. HP Smart Array P800/512 BBWC Controller

SATA - Hot Plug Drives

	Quantity Supported	Position Supported	Controller
120GB 1.5G SATA 5.4K 60GB 1.5G SATA 5.4K	Up to 8	1-8	HP Smart Array E200/64MB Controller HP Smart Array E200/128 BBWC Controller HP Smart Array P400/256MB Controller HP Smart Array P400/512MB BBWC Controller HP Smart Array P600/256 BBWC Controller **NOTE:** Optional mixed PCI-X/E required for SA-P600. HP Smart Array P800/512 BBWC Controller

Storage

External Storage

	Quantity Supported	Position Supported	Host Controller or Adapter
Modular Smart Array 50 Enclosure	2 per connector (supports 1+1 cascading)	External	HP Smart Array P600/256 BBWC Controller **NOTE:** Optional mixed PCI-X/E cage required.
Modular Smart Array 500 G2	1 per SCSI	External	Please see the Modular Smart Array 500 or 500 G2 QuickSpecs for the latest list of supported HBAs: http://www.hp.com/go/msa500.

Modular Smart Array 1000: http://h18000.www1.hp.com/products/quickspecs/11033_div/11033_div.HTML (Worldwide)
Modular Smart Array 1500 cs: http://www.hp.com/go/MSA1500cs

Maximum Storage Capacity - (with MSA50)

Internal	1.168TB (8 x 146GB SAS SFF)
External	2.920TB (20 x 146GB SAS SFF)
Total	4.088TB

Tape Drives, Tape Autoloaders, Tape Libraries & D2D Backup Systems

NOTE: For an up-to-date listing of the latest O/S Support details for each of the Tape Drives listed below, please see the following:
http://h18000.www1.hp.com/products/quickspecs/Division/10233.html (Worldwide)

NOTE: For an up-to-date listing of the latest O/S Support details for each of the Tape Autoloaders and Tape Libraries listed below, please see the following:
http://h18000.www1.hp.com/products/quickspecs/Division/10809.html (Worldwide)

NOTE: For complete listing of tape drive offerings see
http://www.hp.com/products1/storage/compatibility/tapebackup/ISS/index.html

NOTE: SAS Tape Drives: Connecting hard drive cage and SAS tape to the same SAS Controller using split cable (supplied with tape drive) deactivates 1 of the hard drive bays. Actual hard drive bay deactivated depends on where split cable plugs into SAS drive connector. Example: 3x SAS cable connector plugged into SAS drive connector (5-8) on the back of the hard drive cage would mean drive bay 8 is deactivated.

	Position Supported	Controller	Controller Part Number
HP StorageWorks SCSI Tape Drives, External LTO-1 Ultrium 232 LTO-2 Ultrium 448 LTO-2 Ultrium 460 LTO-3 Ultrium 920 LTO-3 Ultrium 960 DAT 40 DAT 72 DAT 160 DLT VS160 SDLT 600 1U Rack-Mount Kit 3U Rack-Mount Kit	External	HP SC11Xe Host Bus Adapter	412911-B21

Storage

HP StorageWorks USB Tape Drives, External DAT 40 USB DAT 72 USB DAT 160 USB 1U Rack-Mount Kit	External	USB 2.0 Port	N/A
HP StorageWorks SAS Tape Drives, External LTO-2 Ultrium 448 SAS LTO-3 Ultrium 920 SAS 1U Rack-Mount Kit	External	HP SC44Ge Host Bus Adapter **NOTE:** Recommended. Smart Array E500/256MB Controller **NOTE:** The following SAS Smart Array controllers require ROM Flash version 2.04 or higher for SAS tape support: HP Smart Array P400/256MB Controller HP Smart Array P400/512MB Controller **NOTE:** Please visit http://www.hp.com/go/connect for details about minimum SAS controller firmware version and SAS cabling requirements.	416096-B21 435129-B21 405132-B21 411064-B21
HP StorageWorks SCSI Tape Automation, External DAT 72x10 Autoloader 1/8 Tape Autoloader MSL2024 MSL4048 MSL8096 MSL6000	External	HP SC11Xe Host Bus Adapter HP U320e SCSI Host Bus Adapter **NOTE:** Only valid for MSL tape libraries.	412911-B21 AH627A
HP StorageWorks SAS Tape Automation, External 1/8 G2 Autoloader MSL2024 MSL4048 MSL8096	External	HP SC44Ge Host Bus Adapter **NOTE:** Please visit http://www.hp.com/go/connect for details about minimum SAS controller firmware version and SAS cabling requirements.	416096-B21
HP StorageWorks Fibre Tape Automation, External MSL2024 MSL4048 MSL6000	External	Please consult the EBS connectivity matrix at http://www.hp.com/go/ebs for detailed connectivity information.	N/A
HP StorageWorks D2D Backup Systems D2D110 D2D120	External	Embedded Network Controller	N/A

Power Specifications

Power Supply Specification - AC	**Part number**		**380622-001**			
	Spare Kit		**403781-001**			
Operational Input Voltage Range (Vrms)	90 to 264					
Frequency Range (Nominal) (Hz)	47 to 63 (50/60)					
Nominal Input Voltage (Vrms)	**100**	**120**	**208**	**220**	**230**	**240**
Max Rated Output Wattage Rating	800	850	1000	1000	1000	1000
Nominal Input Current (A rms)	10.0	8.8	5.85	5.5	5.2	4.97
Max Rated Input Wattage Rating (Watts)	980	1035	1193	1186	1172	1169
Max. Rated VA (Volt-Amp)	1000	1056	1217	1210	1196	1193
Efficiency (%)	81.5	82	84	84	85	85.5
Power Factor	0.98	0.98	0.98	0.98	0.98	0.98
Leakage Current (mA)	0.44	0.52	0.91	0.96	1.00	1.04
Max. Inrush Current (A peak)	30	30	30	30	30	30
Max. Inrush Current duration (mS)	3	3	3	3	3	3

Power Supply Specification - DC	**Part number**		**412837-001**			
	Spare Kit		**419613-001**			
Operational Input Voltage Range (V)	-36.0 to -72.0V DC					
Frequency Range (Nominal) (Hz)	DC					
Nominal Input Voltage (V)	-36	-48	-72			
Max Rated Output Wattage Rating	1200	1200	1200			
Nominal Input Current (A)	38	29	20			
Max Rated Input Wattage Rating (Watts)	1368	1392	1440			
Efficiency (%)	87.6	87.6	86			
Max. Inrush Current (A peak)	60	60	60			
Max. Inrush Current duration (mS)	100	100	100			

NOTES:

- To review typical system power ratings use the Active Answers Power Calculator which is available via the online tool located at url: http://h30099.www3.hp.com/configurator/calc/Power%20Calculator%20Catalog.xls

To drill down to calculators:

- Click on: "ProLiant Servers"
- Click on the Server of interest. Example: DL385 G2
- Click on: "Power Calculator" link. (You may need to scroll down to see it)

System Unit	**Dimensions** (H x W x D) (with bezel)	3.38 x 17.54 x 26.01 in (8.59 x 44.54 x 66.07 cm)	
	Weight (approximate)	Maximum (all hard drives, power supplies, and processors installed)	60 lb (27.22 kg)
		Minimum (one hard drive, power supply, and processor installed)	47.18 lb (20.41 kg)
	Input Requirements (per power supply)	Rated Line Voltage	100 VAC, 120VAC, 200-240 VAC
		Rated Input Current	10 A (at 100 VAC), 9 A (at 120 VAC), 6.1 A (at 200 VAC)
		Rated Input Frequency	50 to 60 Hz
		Rated Input Power	980 W (at 100 VAC), 1035 W (at 120 VAC), 1170 W (at 240 VAC)
	BTU Rating	Maximum	3350 BTU/hr (at 100 VAC), 3530 BTU/hr (at 120 VAC), 3990 BTU/hr (at 240 VAC)
	Power Specifications	To review typical system power ratings use the Power Calculator which is available via the online tool located at URL: http://h30099.www3.hp.com/configurator/calc/Power%20Calculator%20Catalog.xls - Click on the system of interest. Example: DL385 G2 - Follow the instructions of the next screens.	
	Power Supply Output (per power supply)	Rated Steady-State Power	800 W (at 100 VAC), 850 W (at 120 VAC), 1000 W (at 200-240 VAC)
		Maximum Peak Power	800 W (at 100 VAC), 850 W (at 120 VAC), 1000 W (at 200-240 VAC)
	System Inlet Temperature	Operating	10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 10°C/hr (18°F/hr). The upper limit may be limited by the type and number of options installed. System performance may be reduced if operating with a fan fault or above 30°C (86°F).
		Non-operating	-30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr (36°F/hr).
	Relative Humidity (non-condensing)	Operating	10 to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non-condensing.

		Non-operating	5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.
	Altitude	Operating	3050 m (10,000 ft). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
		Non-operating	9144 m (30,000 ft). Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
	Acoustic Noise	Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109).	
		Idle	
		LWAd	6.3 B
		LpAm	47 dBA
		Operating	
		LWAd	6.3 B
		LpAm	47 dBA

Smart Array P400 Controller	**Disk Drive and Enclosure Interface**	3G SAS (Serial Attached SCSI) 1.5G SATA (Serial Advanced Technology Attachment)
	SAS Connectors	2 internal (SFF8484) x4 wide port connectors
	Cache Memory Speed	DDR2-533MHz with 40 or 72-bit wide bus provides up to 4.2 GB/s maximum bandwidth.
	Server Interface	x8 2.5G PCIe provides 2GB/s maximum bandwidth.
	SAS Speed	x8 3G SAS provides 2.4GB/s maximum bandwidth.
	Cache Memory	40-bit 256MB cache (72-bit 512MB module upgrades available); ECC protection, battery-backed, and transportable
	Logical Drives Supported	Up to 32 logical drives
	Maximum Logical Drive Capacity	3TB (6 x 500GB)
	Host Memory Addressing	64-bit, supporting greater than 4GB server memory space
	RAID Support	RAID 6 with ADG (Advanced Data Guarding) requires Battery Backed Write Cache Upgrade RAID 5 (Distributed Data Guarding) RAID 1+0 (Striping & Mirroring) RAID 0 (Striping)

Technical Specifications

Smart Array E200 Controller	**Disk Drive and Enclosure Interface**	3G SAS (Serial Attached SCSI) 1.5G SATA (Serial Advanced Technology Attachment)	
	SAS Connectors	2 internal (SFF8484) x4 wide port connectors	
	Cache Memory Speed	DDR1-266 MHz provides up to 4.2 GB/s maximum bandwidth.	
	Server Interface	x8 2.5G PCIe provides 2GB/s maximum bandwidth.	
	SAS Speed	x8 3G SAS provides 2.4GB/s maximum bandwidth.	
	Cache Memory	40-bit 64MB cache or a 128MB battery backed cache: ECC protection, battery-backed, and transportable	
	Logical Volumes Supported	Up to 32 logical volumes	
	Maximum Volume Capacity	3 TB (6 x 500 GB)	
	Host Memory Addressing	64-bit, supporting greater than 4GB server memory space	
	RAID Support	RAID 5 (Distributed Data Guarding) RAID 1+0 (Striping & Mirroring) RAID 0 (Striping)	

Two Embedded NC373i Multifuntion Gigabit Server Adapters	**Network Interface**	10Base-T/100Base-TX/1000Base-TX	
	Compatibility	IEEE 802.3 10Base-T	
		IEEE 802.3ab 1000Base-T	
		IEEE 802.3u 100Base-TX	
	Data Transfer Method	PCI Express, four lanes (x4)	
	Network Transfer Rate	10Base-T (Half-Duplex)	10 Mb/s
		10Base-T (Full-Duplex)	20 Mb/s
		100Base-TX (Half-Duplex)	100 Mb/s
		100Base-TX (Full-Duplex)	200 Mb/s
		1000Base-TX (Half and Full-Duplex)	2000Mb/s
	Connector	Two RJ-45	
	Cable Support	10Base-T	Categories 3, 4 or 5 UTP; up to 328 ft (100 m)
		100Base-TX	Category 5 or higher UTP; up to 328 ft (100 m)
		1000BaseTX	Category 5 or higher UTP; up to 328 ft (100 m)

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For hard drives, 1 GB = 1 billion bytes. Actual formatted capacity is less.